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#23 Appeal Brief
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Lawrence E. Monks — Date 10/18/95

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of:		Beriont et al.
Serial No.	:	08/220,953
Filed	:	March 31, 1994
Title:	:	METHOD AND SYSTEM FOR TRANSMITTING SYNCHRONIZATION INFORMATION WITH DATA
Group Art Unit	:	2614
Examiner	:	B. Webster

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APPEAL BRIEF UNDER 37 CFR 1.192

THE HONORABLE COMMISSIONER
OF PATENTS AND TRADEMARKS
WASHINGTON, DC 20231

Dear Sir:

This appeal brief is being filed in triplicate.

The appeal brief fee of $290.00 is to be charged to Deposit Account No. 07-2339. If any additionbal charges are required by the filing of this paper, deduct that charge from Deposit Account 07-2339. One additional copy of this notice is enclosed herewith.

Respectfully submitted,

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90-3-816CON1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS

Ex Parte W. J. Beriont et al.

APPLICATION FOR PATENT

Serial No.	:	08/220,953
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Title:	:	METHOD AND SYSTEM FOR TRANSMITTING SYNCHRONIZATION INFORMATION WITH DATA
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90-3-816CON1

BRIEF ON APPEAL

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I.

INTRODUCTION

This is an appeal from the decision of the Primary Examiner mailed February 22, 1995 finally rejecting claims 1-7 in the present application. While the invention is filed in the name of the two inventors, Walter J. Beriont and Mehmet Mustafa, the real party of interest is GTE Laboratories Incorporated which is the assigneee for this patent application.

II.

STATUS OF CLAIMS

Claims 1-7 are pending in the present application. A copy of these claims is contained in the Appendix attached hereto.

III.

STATUS OF AMENDMENTS

There are no outstanding amendments in the present application.

IV.

SUMMARY OF INVENTION

In one aspect of the present invention, a method of transmitting an incoming sequence of signal samples and receiving the transmitted samples includes the step, for each of the incoming samples, of (i) transmitting the sample if the sample is not equivalent to an immediately preceding sample, or (ii) transmitting a synchronization pattern if the sample is equivalent to the immediately preceding sample. The method further includes the steps of monitoring the transmissions at a receiving end to detect the occurrence of the synchronization pattern, outputting a received sample when a synchronization pattern is not

detected, and outputting the immediately previous received sample when a synchronization pattern is detected.

In another aspect of the present invention, a system for transmitting an incoming sequence of signal samples and receiving the transmitted samples includes transmit means for monitoring the sequence of signal samples, transmitting a sample if the sample is not equivalent to an immediately preceding sample, and transmitting a synchronization pattern if the sample is equivalent to the immediately preceding sample. A receive means, coupled to receive the transmission, outputs a received sample when a synchronization pattern is not detected, and outputs the immediately previous received sample when a synchronization pattern is detected.

V.

PRIOR ART REFERENCES

The Office has applied United States patent 4,468,789 "Method for Serial Transmission and Receipt of Binary Information" to William K. Gromen as the single reference to support the 35 USC 103 rejection. A discussion of what is taught by Gromen can be found below.

VI.

REJECTION

REJECTION UNDER 35 U.S.C. 103

Claims 1-7 are rejected under 35 U.S.C. _ 103 as being unpatentable over Gromen. The Office offers that Gromen recites a method for serial transmission in which a word which consists of individual bits is input into a word register, all of the bits are examined sequentially and upon detecting a sequence of bits, replacing the bits predetermined value and transmitting the value in-place of the bits. The apparatus contains a register for storing the bits, detector for sequentially monitoring the bits for consecutive bits, and an output means for transmitting the

predetermined value when a match was found (See fig.#1, abstract, summary, col.3, line 10 to col.5, line 65). The Gromen reference refers to a multiplicity of consecutive bits while the the present application refers to single and double bits. The Office concludes that this fact does not raise the scope of the claimed invention above the teaching of Gromen, and therefore it finds that it would have been obvious to a person with ordinary skill in the art to insert a bit after any amount of consecutive identical bits given the teachings of Gromen because the number of bits being replaced (2 or 8) does not change the scope of the invention.

VII.

ISSUE ON APPEAL

The issues presented for review are as follows:

1. Whether the teaching of Gromen (4,468,789) renders claims 1 - 7 unpatentable as being obvious to one skilled in the art to which the invention pertains.

VIII.

GROUPING OF THE CLAIMS

The rejected claims stand or fall together.

IX.

APPELLANTS' ARGUMENTS

The Office has rejected claims 1-7, under 35 U.S.C. § 103 as being obvious over Gromen (4,468,789). The Examiner states that Gromen recites a method for serial transmission in which a word which consists of individual bits is input into a word register, all of the bits are examined sequentially and upon detecting a sequence of bits, replacing the bits predetermined value and transmitting the value in-place of the bits. The Examiner concludes that it would have been obvious to a person

with ordinary skill in the art to insert a bit after any amount of consecutive identical bits given the teachings of Gromen because the number of bits being replaced (2 or 8) does not change the scope of the invention.

Applicants respectfully submit for the reasons below that claims 1-7 are patentably distinguishable over Gromer. Although Gromer and the present invention both transmit SYNC symbols in their respective signal processing apparatus, the conditions under which such SYNC symbols are used are completely different and render claims 1-7 patentable over Gromer.

In accordance with the present invention as defined by the claims, a method and apparatus are disclosed in which a data stream of digital words are monitored at a transmit end and, upon the occurrence of two consecutive identical words, the second-occurring word is replaced by a SYNC symbol. Thus, the presence of a SYNC symbol indicates the occurrence of two consecutive identical digital words. The identicality may exist regardless of the number of bits currently used to define each word or the specific bit pattern of the word. At a receive end, data recovery is perfect since a SYNC symbol is simply replaced by the digital word immediately preceding it (i.e., the first-occurring one of the two consecutive, identical words) in the transmit sequence.

However, Gromen neither teaches nor suggests using a SYNC symbol to replace the second-occurring one of the two consecutive, identical digital words. Rather, the SYNC symbol is used merely to indicate the beginning of a word transmission (i.e., it functions conventionally as a data boundary), and to indicate that the remaining bits of a word to be transmitted consist of an all-ZERO sequence.

As taught by Gromen, the transmission of a word having a multiplicity of bits is initiated with a SYNC symbol. (see col. 4, lines 49-52). Next, a bit-by-bit analysis of the word's bit sequence is performed to determine what signals are

to be transmitted. Each bit, beginning sequentially with the right-most bit, is detected and it if the detected bit is a ZERO, a DATA Θ signal is sent and if the detected bit is a ONE, a DATA 1 signal is sent. After each bit detection and transmission of, the representative signal, the remaining undetected bits are sensed to determine if they are an all-ZERO sequence. If not, a GAP signal is sent, a bit shift is performed, and the next bit in the sequence is detected. If, however, the sensing operation indicates that the remaining undetected bits are an all-ZERO sequence, a SYNC symbol is transmitted to complete the transmit operation for that word. Clearly, Gromen does not use a SYNC symbol to replace the second-occurring are of two consecutive, identical digital words. Rather, Gromen uses a SYNC symbol to indicate that the remaining bits in a digital word correspond to an all-ZERO sequence, whatever its length may be.

Applicants believe that claims 1-7 are patentable over Gromer, and respectfully request that this rejection be withdrawn. Applicants respectfully request that this rejection be reversed.

X.

CONCLUSION

The 35 U.S.C. 103 rejection of record is contrary to the law and violates Appellant's right to acquire Letters Patent for the subject matter recited in claims 1 - 7. These claims as submitted for appeal clearly define a novel and unobvious invention entitled to patent protection. Accordingly, reversal of the 35 U.S.C.103 rejections of record are required, and such action by this Honorable Board is earnestly and respectfully requested.

Respectfully submitted,

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Lawrence E. Monks 10/18/95
Date

APPENDIX

1. A method of preparing a sequence of consecutively ordered signal samples for transmission, wherein each signal sample is a digital representation of an analog signal quantity, comprising the step of:

for each occurrence of two consecutive identical samples in said sequence, replacing the second-occurring one of said two consecutive identical samples with synchronization information.

2. A method of transmitting an incoming sequence of signal samples, wherein each signal sample is a digital representation of an analog signal quantity, comprising the steps of:

for each of said incoming samples,

(i) transmitting said incoming sample if said incoming sample is not identical to the sample which immediately precedes said incoming sample in said sequence, or

(ii) transmitting a synchronization pattern if said incoming sample is identical to said preceding sample.

3.A method of incorporating synchronization information into an input stream of signal samples, wherein each signal sample is a digital representation of an analog signal quantity, comprising the steps of:

sequentially monitoring the samples in said input stream to detect a match condition characterized by an identicality between two consecutive samples in said input stream;

if a match condition is detected, substituting the second-occurring identical sample with a synchronization pattern.

4.The method as recited in claim 3 wherein said substitution step occurs in real time.

5.A system for transmitting a sequence of signal samples received from an input bus, wherein each signal sample is a digital representation of an analog signal quantity, comprising:

storage means coupled to said input bus for temporarily storing samples;

sample comparison means coupled to said storage means for comparing each sample with the sample which immediately precedes said sample in said sequence, and generating a match signal when said sample is identical to said preceding sample;

output means coupled to said storage means and said comparison means for transmitting each sample in the absence of a match signal, and transmitting a synchronization pattern in the presence of a match signal.

6. A method of transmitting an incoming sequence of signal samples and receiving the transmitted samples, wherein each signal sample is a digital representation of an analog signal quantity, comprising the steps of:

for each of said incoming samples,

(i) transmitting said sample if said sample is not identical to the sample which immediately precedes said sample in said sequence, or

(ii) transmitting a synchronization pattern if said sample is identical to said preceding sample;

monitoring said transmissions at a receiving end to detect the occurrence of said synchronization pattern; and

outputting a received sample when a synchronization pattern is not detected, and outputting the immediately previous received sample when a synchronization pattern is detected.

7. A system for transmitting an incoming sequence of signal samples and receiving the transmitted samples, wherein each signal sample is a digital representation of an analog signal quantity, comprising:

transmit means for monitoring said sequence of signal samples, transmitting a sample if said sample is not identical to the sample which immediately precedes said sample in said sequence, and transmitting a synchronization pattern if said sample is identical to said preceding sample;

receive means, coupled to receive said transmission, for outputting a received sample when a synchronization pattern is not detected, and outputting the immediately previous received sample when a synchronization pattern is detected.